

**MICROFLUIDIC DEVICES WITH THICK-FILM ELECTROCHEMICAL DETECTION**

**ABSTRACT OF THE DISCLOSURE**

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An apparatus for conducting a microfluidic process and analysis, including at least one elongated microfluidic channel, fluidic transport means for transport of fluids through the microfluidic channel, and at least one thick-film electrode in fluidic connection with the outlet end of the microfluidic channel. The present invention includes an integrated on-chip combination reaction, separation and thick-film electrochemical detection microsystem, for use in detection of a wide range of analytes, and methods for the use thereof.

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